

## Algae Again

**It's winter now, but green water is coming.**

*By Stephen M. Meyer*

**Q.** I have heard that in spring there is a tremendous algae build-up in ponds that lasts about six weeks. Would snails help to eliminate this problem? If so, can I use normal aquarium snails, and will they survive the winters?

**A.** Most ponds do indeed "green up" in spring with a dense bloom of planktonic algae. Frequently, the bloom is so thick that the water looks like pea soup and the fish become totally invisible. Unfortunately, often it does not go away after a few weeks. It may hang around all summer. It is safe to say that this particular problem is the one that causes the greatest amount of grief to pondkeepers everywhere.

Unfortunately, snails will have absolutely no effect on the problem. For the most part, snails do not dine on planktonic algae forms. And to the extent that larval snails may eat planktonic algae the quantities are far too small to be noticeable.

For natural control of algae blooms you have to look to competitors for vital nutrients in the water: other plants and nitrifying bacteria. The two nutrients that are highly correlated with algal blooms are nitrogen and phosphorus. The former is dissolved in pond water in the forms of ammonia, nitrite, and nitrate. Phosphorus is present in the form of phosphate and in most cases it is the limiting nutrient. That is, the concentration of phosphate in the pond water will determine the extent of the algal bloom. If you cut the concentration of phosphate, you will reduce the degree of the algal bloom.

Plants such as iris, cattails, and water hyacinth are good consumers of phosphates. The more vigorous the growth rate of the plants, and the more of them, the more effectively they will be able to compete with the algae for dissolved nutrients. If you harvest mature plants halfway through the growing season by cutting them back, they will continue to be heavy consumers of phosphate in the water.

A biological filter is also a good competitor for phosphates. The nitrifying bacteria that populate the filter have a high phosphorus demand. A properly designed and operating biological filter, therefore, can clear a pond very rapidly despite the fact that it is a producer of nitrate.

### Show Goldfish

**Q.** I have been attempting to purchase three show-quality goldfish for a small pond that I recently set up on my patio. So far I have had absolutely no success. Since all I am looking for is such a small number of show-quality goldfish, I would rather not join a society in order to accomplish the task. The cost of the fish, plus shipping, plus membership dues would be more than I could afford. I am looking for 2- to 3-inch fish of the following varieties: oranda shishigashira, calico fantail, telescope black moor and albino oranda. Any suggestions would be greatly appreciated.

**A.** The problem of locating top-quality goldfish and koi in local aquarium stores is a serious one if you live outside a major metropolitan area. It just does not pay for a local aquarium store to stock significant numbers of very fancy (and expensive) goldfish given the relatively low demand for these animals compared with tropical fish.

Moreover, while most customers would not get upset if their \$2.50 angelfish died a week after purchase, many would flip out if a \$75 lionhead went belly-up. Aquarium store owners do not need that kind of aggravation for the low payoff.

Nevertheless, many stores will go to considerable lengths to help customers, and special orders can be arranged. But the price can be steep. The cost of average-quality fish of the type you are talking about can run anywhere from \$15 to \$30 apiece. Show-quality fish may cost from \$20 to well over \$100 each depending on whether the seller is aware of and appreciates the quality of the animal. Shipping may cost another \$40. So you are looking at a combined cost of around \$150 to \$200.

If a local shop cannot help you, then I strongly suggest you reconsider joining a society. Specifically, I would point you in the direction of the Goldfish Society of America. Contrary to what you think, the cost of membership is very small compared to the price of the fish you are interested in, and the payoff is substantial. Annual membership for the GFSA is \$15 a year. For your \$15 you get their monthly newsletter, which is full of helpful breeding and fish-rearing tips. You also get access to a wide variety of private breeders who are willing to part with some wonderful fish — often at very low prices.

A local goldfish club can also be a good source of high-quality fish, and advice. Fancy goldfish are not as hardy as pool comets. Meyer's Law #3: The susceptibility of a goldfish to disease and poor water quality increases with the cube of the price paid.

#### Natural Filtration

Q. I read your article on koi in the July issue of AFI. I am very interested in your natural filtration system for indoor ponds. At present I am in the process of designing an indoor pond for my room addition. Any information you could give me would be very helpful.

A. When I began in the "pond business" years ago, a pondkeeper had to make practically everything. You had to be a plumber, electrician, carpenter, mason and engineer. Today, in contrast, there are a wealth of commercial products that bring pondkeeping within easy reach of those who do not relish the challenge of doing it on their own.

Tetra is one company that offers some very practical and effective items for budding pondkeepers. For the past several months I have been field-testing Tetra's (Brilliant G) Pond Filter. (Yes, I went out and bought one at a local store & \$151; no freebies.) This is a large sponge filter specifically designed to provide mechanical and biological filtration for small outdoor ponds. It is ideal for indoor ponds.

The large cylindrical sponge has an extensive surface area. The telescoping neck allows the filter to be used in ponds up to 40 inches (about 100 centimeters) deep, though I would not suggest going much beyond 24 inches (about 60 centimeters). A weighted base (you add your own aquarium gravel) places the filter firmly on the pond floor. The snap-design locking mechanism that holds the sponge in place disassembles and reassembles quickly for easy cleaning of the filter.

Using Tetra's Luft Pump-G, a heavy-duty air pump, the company claims that the filter can deliver 400 liters (105 gallons) per hour. My tests showed that this is right on the mark for a new sponge operating at a depth of 22 inches (56 centimeters). However, after several weeks of operating — with weekly cleanings — the average flow stabilized at around 300 liters (80 gallons) per hour. This setup also aerates the water very nicely — an important plus for indoor ponds.

The Luft Pump, which has an adjustable air flow, is designed for outdoor use. Like almost all vibrating air pumps, it emits a noticeable buzz when operated at maximum flow with the filter at a depth of 22 inches. Outdoors, you would not notice it. Indoors, it can drive you nuts. You can build a little sound box using Styrofoam to encase the pump if the buzzing bothers you.

To increase the flow and turbulence across the pond's surface, I removed the Luft Pump and seated a Marineland Penguin Powerhead (#550) directly on the outlet tube. This produced a nice steady flow and no sound at all. With the powerhead's aerating feature in operation, the gurgling sound was still more pleasing than the buzz of the air pump.

One good reason to prefer this Tetra filter and Tetra Luft Pump combination is energy efficiency. My indoor pond's lava rock filter was driven by a small water pump. This 0.6-amp pump costs about \$48 per year to operate. The Tetra filter with the Marineland Powerhead (0.17 amps) costs about \$14 per year to operate. The Luft Pump (0.05 amps), however, costs a measly \$4 per year.

Tetra says the pond sponge filter will handle ponds up to 1500 gallons (about 5600 liters), but that means, at best, only two pond volume turnovers per day. This strikes me as far too little for good biological filtration and aeration. I would strongly recommend this filter for outdoor and indoor ponds up to 200 gallons (about 750 liters). If your pond is larger, buy an additional sponge filter and an air pump/powerhead to drive it.

Having used this filter since April of last year, I can confidently say that in terms of simplicity, effectiveness, energy efficiency and convenience, this is an excellent filter for an indoor pond. As long as you stay within my recommendations concerning pond size, I think you will be quite pleased with this filter.